

DRIVING FACTOR FOR THE DEPTH OF HALAL STANDARD IMPLEMENTATION IN INDONESIAN FOOD MANUFACTURING SMEs

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Abstract

The halal food business is still thriving, and Indonesia has a wide-open opportunity to consolidate its position in the global halal market. SMEs are the backbone of the halal food industry. However, prior studies have been focused on halal certification and halal activities in general, while the depth of halal standard implementation has received less attention. This study intends to analyze the factors that influence the level of implementation of halal standards in halal-certified food SMEs that are participating in a business incubation program in Bogor, based on the Technology-Organization-Environment (TOE) framework. Data was collected from SMEs involved in halal-certified food manufacturing using structured questionnaires. The Partial Least Squares Structural Equation Modeling (PLS-SEM) approach was applied to assess 63 SMEs that fulfilled the study conditions. The study indicated that organizational commitment has a considerable and beneficial effect on the depth of implementation of halal standards. On the contrary, internal forces and external pressure are less effective. Possibly SMEs that have had halal certification before are at a similar level of readiness to those that are supported by a business incubation program. The study underscores the importance of organizational commitment in paving the way for higher-level adoption of halal beyond certification. The findings also give important insights to policymakers, halal facilitators, and SME development programs to further promote sustainable halal practices.

Keywords: Depth of Halal Standard Implementation, Organizational Commitment, TOE Framework, Halal-Certified SMEs, Business Incubator

INTRODUCTION

The halal food industry is the fastest-growing industry (Soraya et al., 2023). Indonesia has the potential to be a key player in the world halal products industry, the Global Islamic Economy Report Indonesia 2023 said. The halal food market is estimated at US\$33.61 billion in 2024, with global expenditure on halal food expected to reach US\$1.67 trillion by 2025, according to the Halal Product Assurance Organizing Body (BPJPH). In 2026, the Indonesian government mandated that all food and beverage products marketed in Indonesia must be halal certified. This guideline is for the organization to comply with the three main rules of halal. First, enterprises need to ensure that all commodities imported or handled in Indonesia are halal certified. Second, companies should use verified halal raw materials and ensure sanitation, hygiene, and integrity throughout the production process. Thirdly, there must be conspicuous signs for halal foods. The regulation is expected to boost supply and prepare Indonesia to join the global market. Samsuri (2020) stated that halal certification is not just a legal need but also a commercial benefit for businesses. Halal products offer SMEs (small and medium-sized enterprises) an opportunity to expand their markets, gain consumer trust, and improve product competitiveness. This study examines the factors influencing the depth of halal standard implementation among halal-certified food SMEs participating in a business incubator program.

But the National Committee for Islamic Economics and Finance (KNEKS) stated that exporting halal food is not viable because producers are unable to meet standards for quality, quantity, and competence. There are several halal producers in Indonesia, mostly SMEs. Overall, their contribution is not enough yet, but they have a key role to play in meeting the demand for halal products. More SMEs are receiving halal certification. The firms must always comply with halal regulations in their day-to-day operations and production to ensure product quality and maintain halal certification. Halal standards are ready to ensure that the product is free from contamination, similar to the Hazard Analysis and Critical Control Points (HACCP) technique. Therefore, the implementation of halal standards should be holistic and persistent to ensure the reliable manufacturing of halal products.

Many research, such as Ab Talib and Ai Chin (2018), Giyanti et al. (2021), Amer (2024), and others have been conducted on the implementation of Halal legislation. Most of this research emphasizes the importance of internal organizational elements for halal practices implementation. The main factors discovered were managerial support, employee dedication, and organizational readiness. Such benefits have also been observed in the literature on food safety and quality management systems, where strong internal support has been demonstrated to boost compliance and implementation effectiveness. Research shows that external variables are useful in applying the

criterion of halal. Government rules, customer expectations, and competition maintain consumer confidence and market needs, motivating firms to achieve halal standards and develop their halal operations.

The Technology Organization Environment (TOE) framework proposes that technological factors (e.g., compatibility, perceived usefulness, and complexity), organizational factors (e.g., top management support, internal resources), and environmental factors (e.g., regulatory pressure, competitive landscape, customer demand) can affect technology adoption. The study on the application of halal standards in Indonesia and Malaysia demonstrates that organizational and environmental components are more important than technological components, especially for SMEs. The drivers of halal certification and its execution were found to be organizational readiness, managerial support, and government regulation as established in previous studies (Muhibbin et al., 2026; Ichsan et al., 2024). The TOE framework is projected to affect the extent of halal standards' use, with internal and external factors influencing it.

Other findings of the study revealed that the depth of adoption of the halal standard was significantly influenced by organizational commitment and both internal and external factors. Neal et al. (2012) found that managerial commitment and employee compliance with food safety are important behavioral components of food safety culture. Empirical studies have revealed a favorable relationship between operational performance and organizational commitment. The success of food quality standards such as HACCP and ISO 9001 is related to individual and organizational characteristics (Tram Thi Bich Nguyen, 2022). The commitment of the employees and managers is also considered to be very important for the successful implementation of the halal food standards (Dashti LA, Jackson T, West A, 2024; Rahman et al., 2024). Giyanti et al. (2021) also found that organizational commitment has a positive and significant effect on the implementation of halal food standards in the halal-certified food industry. Organizational commitment is one of the fundamentals in maintaining the integrity of halal. Organizational commitment has a significant beneficial effect on the level of implementation of the halal policy (Ab Rashid & Bojei, 2020; Zailani, 2015).

Most previous studies have focused on halal certification and basic implementation procedures. However, the depth of halal standard implementation has received little attention. In this study, depth refers to the consistent implementation of halal requirements in day-to-day operations, beyond certification, through the integration of the halal concept into organizational processes, monitoring, and improvement. A deeper implementation reflects stronger halal integrity and a higher level of halal assurance maturity within the organization. In addition, studies on halal-

certified food SMEs in the business incubator setting are very limited. Mentoring and support for SMEs in these programs may affect the adoption of halal standards in practice. Hence, this study contributes to the literature by analyzing the extent of halal standard compliance among halal-certified food SMEs within a business incubator. This study examines whether internal factors, external influences, and organizational commitment affect the level of halal standard adoption in organizational practices by using the TOE framework.

METHODS

The study utilized quantitative research design. The data was acquired by using a structured questionnaire. The questionnaire comprised data on respondents' demographics, SME profiles, and measurement indicators, which were assessed on a six-point Likert scale, from 1 (strongly disagree) to 6 (strongly agree). The scale was designed to avoid a neutral midpoint and to push respondents to have a definite opinion on each topic.

The questionnaire was distributed at the Halal for SMEs 2025 Workshop. The purposive sampling technique was used to ensure that the respondents had relevant expertise in halal application. The sample is available only to halal-certified food manufacturing SMEs participating in the business incubation program. The respondents were owners, managers, or personnel directly involved in halal management and implementation efforts. The survey was conducted in the Bogor area on 95 halal food and beverage SMEs, but only 63 SMEs met the criterion of respondents.

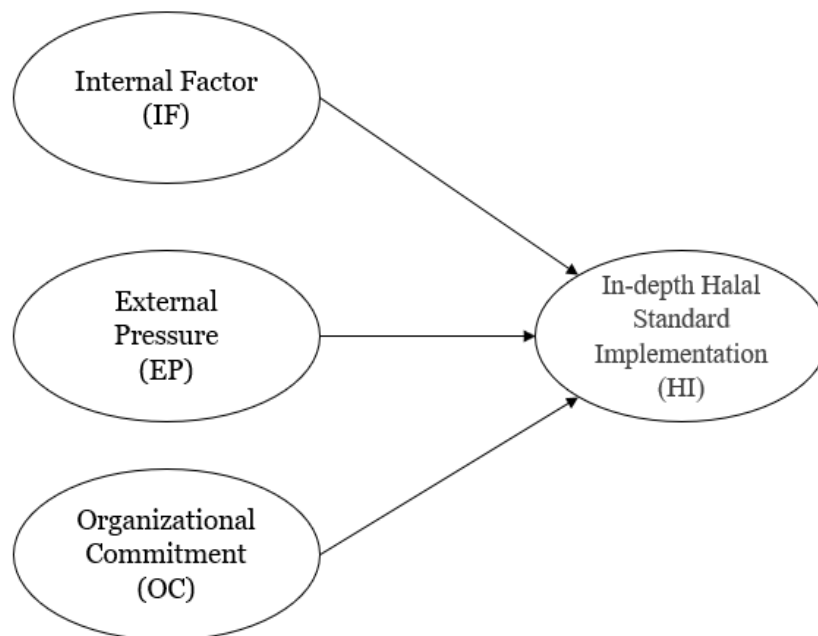


Figure 1. Conceptual model

Based on past research that internal factors, external pressures, and organizational commitment significantly affect the implementation of the halal standards, this study proposes three hypotheses:

H1. Internal factors positively influence the depth of halal standard implementation.

H2. External pressure positively influences the depth of halal standard implementation.

H3. Organizational commitment positively influences the depth of halal standard implementation.

The operational definition of the construct and measurement items can be seen in the table below:

Table 1. Operational Definitions and Measurement Items

Construct	Definition	Indicators	Source
Internal Factors	Organizational resources and capabilities supporting halal implementation	Quality improvement, image improvement, operational improvement	Ab Talib & Ai Chin (2018); Giyanti et al. (2021)
External Pressure	External influences encouraging halal implementation	Customer need, Competitive advantage, Customer trust, Regulation, Local Government support, Credible Halal Inspection Body	Zailani (2010); Amer (2024)
Organizational Commitment	Commitment of management and employees to halal practices	Understanding the Halal standard from the leader, Leader-driven employees comply with Halal, maintain Halal status understanding, Consistent Halal standard during production, Halal values in daily activities	Giyanti et al. (2021)
Depth of Halal Standard Implementation	The degree to which halal requirements are embedded in operations	Halal Commitment, Raw Material, Halal Product Process, Product, Identification, and Traceability	Adapted from Decree of the Head of BPJPH No. 57 of 2021

This study used partial least squares structural equation modeling (PLS-SEM) to analyze the relationships among the constructs. PLS-SEM, developed by Wold (1980), is a more appropriate approach for exploratory research that aims to predict causal relationships when the theoretical foundation is weak. Hair et al. (2010) revealed that PLS-SEM is designed for predictive purposes in high-complexity contexts with limited theoretical support and can accommodate small sample sizes (Hair et al., 2014). In this study, data analysis was conducted in two stages: measurement model assessment and structural model testing (Hair et al., 2020).

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RESULT AND DISCUSSION

Validity and Reliability

The outer loading results for each indicator evaluate the indicator's validity. A loading value above 0.7 indicates that the construct explains more than 50% of the variance in the indicator (Kwong-Kay, 2013; Purwanto & Sudargini, 2021). The outer loading value in Table 1 indicates that all items or indicators have outer loading values greater than 0.7 and are therefore valid.

Table 2. Indicator Validity

Variable		Indicator	Loading Factor
In-Dept Halal Standard Implementation (HI)	HI1	Halal Commitment	0.911
	HI2	Raw Material	0.951
	HI3	Halal Product Process	0.935
	HI4	Product	0.949
	HI5	Identification and Traceability	0.913
Internal Factors (IF)	IF1	Quality improvement	0,933
	IF2	Image improvement	0.915
	IF3	Operational improvement	0.903
External Pressure (EP)	EP1	Customer need	0,724
	EP2	Competitive advantage	0,889
	EP3	Customer trust	0,917
	EP4	Regulation	0,945
	EP5	Local Government support	0,901
	EP6	Credible Halal Inspection Body	0,917
Organizational Commitment (OC)	MP1	Understanding the Halal standard from the leader	0,911
	MP2	Leader-driven employees comply with halal	0,951
	MP3	Maintain halal status understanding	0,935
	MP4	Consistent halal standard during production	0,949
	MP5	Halal values in daily activities	0,913

Source: Processed data

Internal Consistency Reliability is measured by the value of composite reliability (CR) and Cronbach's alpha (CA). A composite reliability value above 0.7 is considered good (S. Davcik, 2014), and a Cronbach's alpha value above 0.7 is desirable (Taber, 2018). At the same time, the

Average Variance Extracted (AVE) value is greater than 0.5, indicating that the convergent validity requirements have been met. The values of CA, CR, and AVE in Table 2 indicate that all constructions are reliable and have met the requirements for convergent validity.

Table 3. Internal Reliability

Variable	CA	CR	AVE
HI	0.962	0.971	0.869
IF	0.906	0.941	0.841
EP	0.943	0.956	0.783
OC	0.951	0.963	0.838

Source: Processed data

Table 3 presents the results of the discriminant validity analysis, utilizing the Fornell-Larcker Criterion. The results showed that the square root of the AVE of each construct was greater than its correlation with other constructs. It indicates that the construct was unique and differentiated from the others. The indicators of each variable also loaded more strongly on its own construct than on other constructs, confirming adequate discriminant validity.

Table 4. Fornell-Lacker Criterion

	HI	OC	IF	EP
HI	0,932			
OC	0,907	0,915		
IF	0,813	0,832	0,917	
EP	0,875	0,865	0,883	0,885

Source: Processed data

Multicollinearity is a phenomenon in which two or more independent variables or exogenous variables are highly correlated, resulting in a model with poor predictive ability. Based on the VIF values in Table 4, none exceed 10, indicating no multicollinearity.

Table 5. VIP Values

IF	EP	OC
4,951	6,064	4,335

Source: Processed data

The results of the validity and reliability tests above indicate that the research instrument meets all criteria for testing the structural model.

Hypothesis Testing

In this study, hypothesis testing uses path coefficient measurements between constructs. These measurement results will determine the significance and strength of the relationship between constructs. Path coefficient values range from -1 to +1. The closer to +1, the stronger the relationship between the two constructs. A relationship closer to -1 indicates a negative relationship.

Table 6. Path Coefficient and Hypothesis Test

Hypothesis	Path	Path Coefficient	T Value	P Values	Conclusion
H1	IF → HI	-0,004	0,020	0,984	Rejected
H2	EP → HI	0,359	1,727	0,085	Rejected
H3	OC → HI	0,597	2,790	0,005	Accepted

Source: Processed data

The output path coefficient (α), p-value as shown in Table 5, indicates that internal factors ($\alpha=-0.04$; p-value 0.984) and external pressure ($\alpha=-0.362$; p-value 0.098) do not have a significant impact on the depth of implementation of halal standards. These findings differ from those reported in previous studies, where halal certification was voluntary (Ismail & Kuivalainen, 2015; Silalahi SAF, Fachrurazi F, 2022; Susanty A, Puspitasari NB, Jati S, 2022).

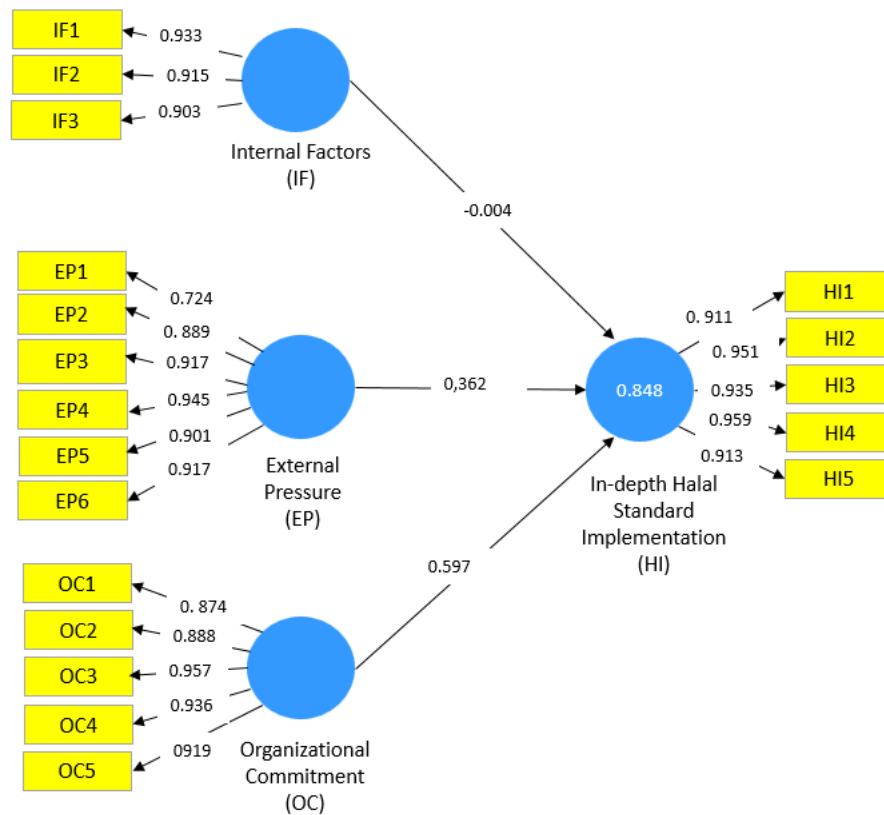


Figure 2. Structural model with path coefficient and adjusted R² values

Meanwhile, the organizational commitment variable exhibits a significant output path coefficient and p-value for the depth of halal standard implementation ($\alpha = 0.937$; p-value = 0.000). This finding aligns with previous studies indicating that organizational commitment can facilitate the effective implementation of halal standards in the food manufacturing industry. (Ab Talib & Ai Chin, 2018; Silalahi SAF, Fachrurazi F, 2022).

The coefficient of determination (R^2) shows how much variance in an endogenous construct is explained by an external construct. The combined influence of internal factors, external pressure, and organizational commitment affects the depth of implementation of halal standards, with R-squared and modified R-squared values of 0.855 and 0.848, respectively. This suggests that the total influence of all exogenous causes on the endogenous variable is 84.8%. This indicates that all exogenous variables simultaneously influence the endogenous variable by 84.8%, which is categorized as strong, as the percentage exceeds 66%.

A possible explanation for the non-significant impacts of internal and external components may be the characteristics of the respondents. All responses are from SMEs, halal-certified, and part of a business incubator program. Therefore, the amount of readiness and assistance in applying halal can be similar among them, so the differences among the companies are small. Another possible explanation is that the internal and external factors investigated in this research are relatively general and do not capture the full range of halal-specific elements. Halal culture, halal assurance procedures, halal governance, and dedication to halal integrity may play a greater role in shaping the depth of implementation of halal standards (Maflahah et al., 2025; Abdul Rahman et al., 2024). From a TOE perspective, the organizational and environmental aspects are generally intended to drive implementation. However, when firms already receive continuous guidance, mentoring, and support through an incubator program, these factors may become less influential in explaining variations in implementation depth. The results of this study contradict the previous research by Ab Talib & Ai Chin (2018), who showed that internal factors have a major effect on the implementation of halal. The difference can be attributed to the characteristics of the respondents and the study environment. This study differs from prior studies because the respondents were SMEs that were already halal-certified and had participated in a business incubation program. This may reduce the variety in the organizational readiness among SMEs.

CONCLUSION

The results of this study show that organizational commitment is important in the depth of implementation of halal requirements in halal-certified SME food manufacturers. However, the depth of implementation of halal standards is not considerably contributed by internal causes and external influences. In addition, the findings have the following theoretical, practical, and policy implications. The findings provide more insight into the adoption of the TOE framework in the halal industry. At high levels of SME readiness, the role of organizational and environmental factors may be less significant. The results imply that the TOE framework needs to be viewed in regard to the organizational environment and the level of maturity of halal implementation. These findings have practical implications for BPJPH, KNEKS, the halal business incubator, and the halal facilitator. These institutions should institutionalize halal practices through training, mentoring, and constant monitoring. Furthermore, government programs should aim to enhance the organizational commitment, personnel awareness, and halal management capacities of the SMEs. Such initiatives may help SMEs maintain halal integrity and improve the quality of halal implementation beyond certification. Moreover, future research can also explore other aspects linked to halal, such as halal culture, halal assurance process, and halal integrity, to better understand the implementation of halal requirements.

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